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SOME
OBSERVATIONS
ON THE
VARIOLOID DISEASE,
WHICH HAS LATELY PREVAILED IN EDINBURGH,
AND ON THE IDENTITY OF
CHICKEN-POX AND MODIFIED SMALL-POX,
IN A LETTER ADDRESSED TO DR DUNCAN, JUNIOR.

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OBSERVATIONS, &c.

DEAR SIR,—I beg leave to communicate to you the results of some observations which I have had occasion to make in attending to the progress of the eruptive varioloid disease that has lately prevailed in Edinburgh, and of the occurrence of which, in the Military Hospitals, my friend Mr Hennen has given so accurate and interesting an account in the present number of your Journal.

My attention was first called in a particular manner to this disease by the cases of it which occurred in the Depot Hospital, and by the cases in the Castle, produced by inoculation, with the matter taken from Mr Hennen's son. Since that period I have seen in various parts of the town seventy-two cases of this eruption, including those which have been detailed by Mr Hennen. Of this number eight have had the disease after having passed through the small-pox, twenty-seven after having had the cow-pock, two have had the disease co-existent with cow-pock, and thirty-five, including the six children who were inoculated in the Castle, had not passed through either small-pox or cow-pock. Three of the children affected with this disease after cow-pock had previously passed through an eruption of the same sort, and in one of these, I have had the best opportunity to observe, that the disease has each time exhibited the appearances which have been supposed to be characteristic of chicken-pox.

The greater part of those affected with this disease, who came first under my notice, had previously passed through either

small-pox or cow-pock, or had had the disease communicated to them by inoculation. In watching the appearances and progress of the eruption in these persons, I was for a considerable time inclined to regard it as chicken pox, till having an opportunity of observing its severity and fatality in those who had not undergone small-pox or cow-pock, I was compelled to abandon that idea, and to believe that in all the different forms under which this eruption has appeared, it could be no other than the small-pox.

This epidemic has attacked three different classes of persons, *1st*, Those who had passed through small pox ; *2dly*, Those who had had cow pock ; and, *3dly*, Those who had had neither small-pox nor cow-pock, and in all of these it has appeared to possess some common characters. It has usually commenced in a vesicular form, or in a papular speedily becoming vesicular, and has become pustular only in some cases in its progress. The pustules have appeared sometimes with, and sometimes without a central depression. The eruption has been irregular in size and form, as well as in the place of its first appearance, and in most instances it has appeared to occupy only the surface of the skin. It has in almost all instances come out in successive crops, some of which have appeared on the body after the eruption was at the height on the face. It has in general appeared even in severe cases to have arrived at the height on the face by the 6th day of the eruption, and in the milder not unfrequently by the 4th or 5th day. The fluid contained in the vesicles and pustules has in a great number of instances appeared to be lymph rather than pus, even to a late period of the disease, and has generally dried into horny scabs covering tubercular elevations of the skin, which, in several instances, have been followed by pits or depressions of that texture. In the decline of the eruption, vesications upon an inflamed basis of a greater or less extent, have frequently appeared upon the extremities, generally filled with lymph, but in a few instances with air ; and, in some instances, small abscesses have formed in the subcutaneous texture. This eruption has rarely had any of the smell peculiar to small-pox. It has produced but very little temporary blindness, and has seldom been accompanied by the symptoms of secondary fever.

In four of the eight patients who had had small-pox, this epidemic has appeared in a highly aggravated and somewhat malignant form. Comparatively but few, I believe, have ever recovered of primary natural small-pox who have had them in number and form similar to those described in Nos. 12, 13, and 14, of Mr Hennen's cases. The disease in his 4th case,

though severe, could not be said to be malignant, and in the other three instances it has been so mild, and of so short duration, that, had these cases occurred before the vaccine inoculation was known, no practitioner of experience would, I am convinced, have hesitated in pronouncing them to be distinct and unequivocal cases of chicken-pox.

Of the twenty-nine patients who had undergone cow-pock inoculation, no one has died, and three only have had the disease in a very severe form. In by far the greater part of this class, the eruption has been papular or vesicular, without becoming distinctly pustular, and when it has become so, the pustules have appeared chiefly on the face, while the disease has remained vesicular on the rest of the body. In some of these cases the eruption has been at the height by the third, in others by the fourth, in most by the fifth, and in the severer by the sixth or seventh day. I have not been able to discover in the appearances, progress, or termination of the disease, as it has occurred in those who had been vaccinated, any symptoms by which I could distinguish it from the three varieties of chicken-pox described by Dr Willan, or from the numerous cases of that disease which I had seen before, and since the practice of vaccination has been introduced.

Of the twenty-nine patients who have had this disease in the natural way, without having previously passed through cow-pock or small-pox, nine have died. In five of these fatal cases the disease was of the kind which has been so well described by Dr Rogers of Cork, and by the late Dr Walker of this place, under the name of malignant crystalline or water-pox. In two of these, petechiæ or livid spots made their appearance before death; three died on the 6th, and two on the 8th, day of the eruption. In the other four cases, the disease was pustular and confluent, one died on the 9th, two on the 12th, and one on the 18th day.

In thirteen of those twenty-nine cases, the disease, though it has not proved fatal, has been more or less severe. In several, particularly in adults, it had from the first the appearances which are usually described as characteristic of genuine small-pox, sometimes of the distinct, and at other times of the confluent kind. In others, the disease had at first the appearance of aggravated chicken-pox, rather than of small pox, the eruption coming out in successive crops, and being chiefly vesicular in its first stages, and becoming only pustular in its progress. In very few of the severer cases have there been any symptoms of secondary fever, and these have been mild and of short duration.

In the remaining seven cases the disease was remarkably

mild, so much so as to resemble chicken-pox, or the inoculated rather than the natural small-pox. In these there was comparatively but very little eruptive fever, and in three or four instances the disease seemed to be at the height by the fourth or fifth day. Had not these cases occurred in situations where the malignant small pox existed, I should not have been disposed, from the appearances which manifested themselves, to believe that they could have originated from the infection of genuine small-pox.

The history of the progress of this contagion in the military hospitals has been so fully and circumstantially related by Mr Hennen, as to render it quite unnecessary for me to enter upon it. I shall only remark, that there seems no reason to doubt, that all the cases of mild and malignant small-pox which have occurred in the Castle, were derived from matter taken from Mr Hennen's son. He and his brother appeared to have caught the disease from Sergeant Williamson's son, and this boy again from the patient Wright in the Depot Hospital, who passed through a disease which was regarded as distinct and mild chicken-pox. I may add, that, in one of Mr Hennen's children, the disease was so mild as to escape almost unobserved; and in the other, from whom the matter was taken for inoculation, though the constitutional symptoms were at first severe, the eruption appeared to me to afford, in every step of its progress, one of the best marked cases of chicken-pox which had ever come under my observation.

Though in other parts of the town it has been more difficult to trace accurately the progress of the contagion of this epidemic, yet, in several situations, the mild and malignant form of the disease have appeared evidently to produce each other. This was particularly obvious in two situations where the disease prevailed extensively, in the different floors of a tenement on the Castle Bank, and in those of another tenement on St Leonard's Hill. From the fatality of the disease in these two situations among the children who had not been vaccinated, and its aggravated form even in some of those who had been vaccinated, no room was left for doubt that the disease was malignant small-pox, though in both situations several children passed through it in a form so mild and so accurately resembling chicken-pox as, in my opinion, not to be distinguishable from that disease. I have been informed of the mild form of the disease producing the malignant in unvaccinated persons in three other places of the town besides those I have mentioned, and that too in families in the better condition of life. I hope the different medical practitioners who have witnessed the oc-

currence of this important fact, will be induced to communicate to the public an account of the circumstances in which they respectively saw it occur.

It was my having seen the disease at first only in its mild form, and among those who had had small-pox or cow-pock, that induced me to believe, for a long time, that even the aggravated cases which presented themselves to my observation, could only be cases of chicken-pox; and I was the more disposed to take this view of it, that I had formed a similar judgment with regard to an epidemical eruptive disease, which I saw prevailing extensively in the villages of Colinton, Slateford, and Currie, during the year 1809. The present epidemic appeared to me to resemble in every particular that which I then had occasion to see, and which, from a careful comparison of its symptoms in the milder cases, with Dr Willan's description of chicken pox, I had concluded to be that disease. I was the more confirmed in my belief of these epidemics being chicken-pox, from my observing at both periods two symptoms occur in several patients which have been regarded by Dr Willan and others as diagnostic of chicken-pox. I allude to the succession in the crops of the eruption, and the formation of vesications of greater or less extent, resembling those made by scalding water, occurring among, or in the interstices of the eruption, and producing the appearance which has been termed by some the *swine pox*, and which, in treating of the diseases of the skin, I have been in the use of pointing out to my pupils as marks by which, in doubtful cases of small-pox or chicken pox, they might determine the true nature of the disease. I mention this circumstance with a view to show the reluctance and difficulty which I have had in adopting the conclusions that have forced themselves upon my mind, and which I shall now briefly state to you.

Ist, I have been convinced, by the varieties which have appeared in the form of this epidemic in the different individuals, whom it has attacked, that the descriptions which have been given of the appearances and progress of the eruption in small-pox by our best systematic authors, are, in many respects, imperfect; that the diagnostic marks which have been pointed out between small-pox and the disease that has been termed chicken-pox, are not to be relied upon; and that no applicable marks of distinction between modified small pox and chicken-pox have hitherto been established. My observation would lead me to believe, that the eruption which succeeds to cow-pock, has more of a vesicular or varicelloid appearance in infants, than it has in adults, while, in these again, it shows a disposition to become pustular, and exhibits more of the characters of small-pox.

2dly, It appears from the records of medicine, that the same person may have small pox twice, (if not oftener,) during life; and the number of cases of this which have lately occurred in so short a time in Edinburgh, and in so limited a number of patients, seems to me to warrant the conclusion, that this must have been a much more common event than has usually been imagined. It is an event which, I conceive, must have occurred frequently, though its occurrence is denied by some, and comparatively but few instances of it are recorded, even by those who believed in its possibility.

3dly, It has been, I conceive, incontrovertibly established by Dr Jenner and his followers, that cow-pock has the property of rendering those who have passed through it, much less susceptible of small pox infection than they were before; and, besides this, that it possesses also the invaluable property of modifying the small-pox in those who receive them, and of converting them, from the most fatal of all diseases, to one scarcely, if at all fatal. A sufficient number of observations have not yet been collected to prove satisfactorily, that this last property is possessed in an equal degree by the small pox, though it seems probable from some, but not all of those cases of secondary small pox which have been recorded, as well as from the result of some of the cases of this kind which have occurred in Edinburgh, that small-pox also possess a similar property.

4thly, By admitting that small-pox possess this modifying property, it will follow, that, in the instances in which they exerted this influence previously to the discovery of cow-pock, they must have produced a mild and less fatal species of small-pox, but a species which has not been recognized or pointed out as differing from primary natural small-pox by any author with whose writings I am acquainted. It seems, therefore, probable, that this secondary small-pox, which we have now so much reason to believe was of frequent occurrence, must have formed a considerable portion of the varioloid eruptions that were formerly denominated the spurious small-pox, and afterwards by some the chicken-pox. On the supposition that cow-pock preserves from the infection of small-pox in an equal degree with small-pox themselves (and I am not aware of any facts which tend to prove the contrary,) it will follow that the twenty-seven individuals whom I have mentioned as having had the varioloid disease after cow pock, would, if they had had small pox instead of cow pock, have become affected with small pox a second time, on being exposed to the contagion of this disease, and that too in a form which, previously to the discovery of the cow-pock, must have appeared to practitioners as spurious small-pox or

chicken-pox. In this case it is evident that thirty-five of sixty-four of the patients who took the varioloid disease in the natural way, would have passed twice through small pox.

5thly, After Dr Heberden had distinguished chicken-pox from small pox, and had convinced himself and the medical world, that these diseases arise from two contagious poisons, specifically distinct from each other, it seems probable, that the cases of modified secondary small-pox which may have occurred, must have been described as cases of chicken-pox, since we nowhere find any hint of the possible co-existence of these two diseases, or of the danger in which medical practitioners are of confounding them together, and also, since we find authors of so great authority as Dr *Monro Primus*, and Dr Heberden, affirming that small-pox after small pox is an event of rare occurrence. The former says, "My correspondents almost all agree with me in affirming, that they never saw any attacked by true small-pox after they had the true kind, whether communicated by art or by nature;" and the latter, "It would be no extravagant assertion to say, that here, in England, not above one in ten thousand patients is pretended to have had it twice, and wherever it is pretended, it will always be as likely that the persons about the patient were mistaken, and supposed that to be the small-pox, which was an eruption of a different nature, as that there was such an extraordinary exception to what we are sure is so general a law."

It therefore appears to me, 6thly, That it now remains to be investigated, in what proportion of the cases, which have been denominated chicken-pox, it is probable the disease has been secondary modified small-pox; and, upon the supposition of these being two distinct diseases, by what marks we are in future to distinguish them from each other. I can only repeat, that, in a great proportion of the cases of small-pox which have occurred to my observation after small-pox, as well as in those cases that had been modified by previous cow-pock inoculation, I have not been able to distinguish them from chicken pox, but have found every symptom in them to correspond most accurately with the descriptions of the varieties of chicken pox, which have been given by Heberden, Willan, Bateman, and others. I am, therefore, satisfied, that previously to the discovery of the cow-pock, secondary small-pox being a disease frequent in its occurrence, must have stood in nearly the same relation to primary small-pox, that modified small-pox now stand in to cow-pock; and my present impression is, that it may be, that chicken-pox and modified small-pox are one and the same disease.

I am not aware of any accurate or extensive series of observa-

tions which contradict this hypothesis, nor do I think it can well be set aside, till it shall be proved that chicken-pox occur generally in persons who have not passed through cow-pock or small-pox, and prevail epidemically without cases of small-pox appearing among them; but of this I find no unequivocal example in the past records of medicine. There are upon record, it is true, many cases in which the spurious or chicken-pox are said to have preceded small-pox, and others in which the chicken pox are said to have intervened between the cow-pock and the modified small-pox. Before, however, admitting that in the production of these cases, there operated two poisons specifically different, it will be necessary to be assured, that the appearances exhibited by chicken-pox cannot be produced by the contagion of primary small-pox, and *vice versa*, as well as, that the contagion of small pox cannot produce an eruptive disease twice in those who have undergone cow-pock inoculation.

It will be necessary also to ascertain, whether those who have passed through small-pox in its milder form, are equally secure against a second attack of small-pox, as those who have passed through the disease in its more regular and severe form. For if it shall be found that those who have passed through the mild sorts of small-pox are less secure against a second attack, than those who have passed through the severe, it will then be rendered probable, that many of the cases which have been considered as cases of chicken-pox, preceding small pox, were in fact only cases of mild small-pox, similar to some of those which have been produced by the present epidemic, in individuals who had neither passed through cow pock nor small-pox, and which exhibited in their appearance the characters that Dr Heberden has assigned to chicken-pox.

Can it be that the hypothesis of the contagion of chicken-pox being specifically different from that of small-pox, has been had recourse to, in order to explain those cases of secondary small-pox which may have occurred after variolous inoculation, and in the benevolent wish of vindicating that practice from the aspersions of its being inefficacious?

7thly, It seems to me certain, that the epidemical disease which has of late prevailed in Edinburgh, is the same with those varioloid diseases which, since the introduction of cow-pock inoculation, have been observed in many places of this and other countries, and which have been by some medical practitioners regarded as small-pox, and by others as chicken-pox. Of this kind, I conceive, was the disease which Mr Brown of Musselburgh has described, as occurring in forty-eight individuals after cow-pock inoculation. This author has omitted to mention the period at which the

eruption was at the height in ten of his patients, but in the remaining thirty eight, it deserves to be remarked, that the eruption was in five of them at the height by the 3d day; in two by the 4th; in twelve by the 5th; in seven by the 6th; in nine by the 7th; and in three by the 8th day; and that no instance is recorded of death having occurred in any of these patients. Though Mr Brown's statement was made for the purpose of throwing discredit upon the efficacy of cow-pock inoculation, the salutary powers of that practice in modifying small-pox, seem to me to be established by his cases, beyond all possibility of doubt or cavil. I can have no doubt also, that this is the disease, concerning which the medical practitioners of Forfarshire published a short Report in 1813, and of which Dr Adams has given a more minute detail in his Inaugural Thesis, printed here in 1814. This gentlemen mentions, in p. 42, that this disease, which the medical men of Forfarshire have concurred in denominating small-pox, had occurred in five or six individuals, who had formerly passed through that disease. The efficacy of the cow-pock in modifying the small pox, is proved by the testimony of the medical practitioners, as to the mildness of the disease in those who had been vaccinated; and also by the fact, that no patient who appeared to have been properly vaccinated, died of it. The very interesting account given by Dr Dewar, of the eruptive disease which has appeared lately in Fife, contains many proofs, that the disease which he describes is the same with that which at present exists in Edinburgh. Of seventy cases attacked with this eruption, fifty-four had been vaccinated, and of these, one child who had been long in bad health, died. Of sixteen who had not been vaccinated, four died, a proportion wonderfully near, though somewhat less than that of the mortality which has occurred in Edinburgh.

Lastly, It seems to me, that the hypothesis which I have thrown out, if it shall be confirmed by future experience, will afford a satisfactory explanation of the nature of those varioloid diseases which have of late years been observed to succeed to the practice of cow-pock inoculation, and will, at the same time, reconcile the various and discordant opinions which have been entertained by medical practitioners, respecting these diseases.

I shall only add, that I feel no anxiety about the fate of this hypothesis, any farther than that it may tend to promote investigation, in the important subject to which it relates, and to defend the most valuable of all modern discoveries, in the only point in which it can now be supposed to be vulnerable.

A friend, in whose judgment and experience I place the greatest confidence, has been pleased to express himself to me

in the following terms: “ The opinion suggested by you, that these diseases may all owe their origin to one and the same contagion, if true, would close up much debateable ground—connect and explain many anomalies—simplify our future inquiries—and place beyond any doubt the supremacy of vaccination, as a prophylactic of regular small-pox. Although the opinion suggested does still appear to me very doubtful, I think you will do quite right to publish your observations at once, and in the way you proposed. This will re-agitate a most important pathological question, and elicit from others, interesting information on many yet doubtful points in the history of those diseases. Though doubtful, however, I am far from thinking your opinion fanciful or unfounded; on the contrary, I could furnish some hints rather favourable to its probability.”

Before concluding these observations, permit me to avail myself of this opportunity, to return my best thanks to my friends, Drs Maclagan, Moncrieff, Tweedie, and Bartlett, and to Messrs Johnston, Shetky, White, and Thomson, for the opportunities which they have afforded me of seeing the patients affected with this disease under their care; and permit me at the same time to say, that I should feel myself particularly obliged to any of your readers who take an interest in this subject, by their communicating, through the medium of your Journal, or by letter, addressed directly to myself, any facts which may have occurred in their practice, tending either to confirm or to refute the hypothesis, *that small-pox, chicken-pox, and modified small-pox, all proceed from one and the same contagion.* I remain, dear Sir, yours, &c.

5, George Street, }
15th September 1818. }

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